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ABSTRACT

Many school staff and their client communities are concerned about pupil achievement, skills, and attitudes related to the environment. To respond to these concerns, staff need to determine how they can improve their environmental education programs by modifying the content and skills emphasized in the curriculum, and supplementing instructional approaches. In this digest, sources of curricular frameworks, sources of information on materials and programs which have evaluation data, and sources of information on promising programs and materials are discussed. A list of 10 selected information sources with addresses is included. Seven references are listed. (CW)

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SOURCES OF INFORMATION ABOUT PROMISING AND EXEMPLARY PROGRAMS AND MATERIALS FOR ELEMENTARY AND SECONDARY ENVIRONMENTAL EDUCATION

by

Robert W. Howe

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SOURCES OF INFORMATION ABOUT PROMISING AND EXEMPLARY PROGRAMS AND MATERIALS FOR ELEMENTARY AND SECONDARY ENVIRONMENTAL EDUCATION

Interest in the environment and environmental education has increased during the past two years and will continue to increase as a result of Earth Day 1990. Many school staff and their client communities are considering what they should do as a follow-up to Earth Day and are searching for useful programs and materials.

While new programs and materials are constantly being developed, a variety of programs and materials are currently available. This digest identifies a selection of completed programs and materials completed and under development.

What should be included in an environmental education program?

There are several publications available to use to determine what should be included in a good environmental education program. Several states including Wisconsin (Engelson, 1986), California, and Minnesota have produced state guides or frameworks suggesting ways of reorganizing environmental education and content, skills, and behaviors to teach.

Several researchers and developers of materials (Roth, Hungerford, and Engelson) have developed recommended frameworks for environmental education. These frameworks have been used both in research and in developed materials.

The growing Science/Technology/Society movement also includes environmental topics in their recommended curricula. Suggested frameworks and materials are included in several newsletters of the National Association for Science, Technology, and Society, and in publications produced by the National Science Teachers Association and ERIC/SMEAC.

What materials are available that have been evaluated for their impact on student performance?

The National Diffusion Network (NDN) provides funds to disseminate exemplary programs and materials. Before a program can be included in the NDN program, it must be approved by a review group, the Program Effectiveness Panel. A program requesting a review must provide evaluation data that indicate the program was effective in the school in which it was developed or field tested and that it could be used successfully in other schools.

Programs or materials that are judged effective are summarized in the Department of Education publications *Education Programs That Work (Education Programs. . .*, 1988); updated editions are produced periodically. Several environmental education programs have been reviewed and received support from NDN. Environmental education programs listed in the most recent edition include: Conservation for Children, conservation awareness and basic skills, grades 1-6; The Environmental and Technology Project, interdisciplinary curriculum including energy, land use, pollution and urban management, grades 9-12; Foundational Approaches in Science Teaching (FAST), physical, biological and earth sciences and their relation to the environment, grades 6-8; Science-Technology-Society: Preparing for Tomorrows World, 12 modules including environmental topics, grades 7-12; WIZE: Wildlife Inquiry Through Zoo Education, population ecology, wildlife conservation and species survival, grades 7-9 and Project ECOLOGY (Environmental, Career-Oriented Learning), infusion materials for primary, intermediate, and secondary grades.

What are some other sources of information about promising programs and materials?

Some programs and materials have been found to be effective for improving learning, but have not been reviewed on a formal basis by an outside organization or agency. Based on their use and reported results, they are considered promising programs and materials and worthy of consideration by others.

The COSMOS Corporation (White, 1986) worked with several associations and groups to identify programs and materials that were considered effective. The catalog published in 1986 contains more than 20 descriptions of programs, materials, and practices that include environmental education topics.

The National Science Teachers Association (NSTA) inaugurated the Search for Excellence that included environmental education. A committee established criteria for excellence and applied them to select environmental education programs. Ten environmental education programs from 10 states were selected.

NSTA also included Science/Technology/Society programs in their Search for Excellence program. Thirteen programs from 11 states were selected. Nearly all the selected programs included environmental education topics in their programs.

The National Science Foundation has recently funded a number of elementary and secondary school curriculum development projects. Several of these programs include topics and materials related to environmental education. The Kids Network, for example, has developed modules with activities related to water quality, acid rain and weather; data are collected and shared with other schools throughout the country working on the same activity.

Some projects have developed sets of elementary and secondary curriculum materials and provide inservice education on how to implement them and use them in the schools. Project Learning Tree and Project

Wild (source of both Project Wild and Aquatic Wild) are two examples of these projects. These programs are currently used in over 40 states. Both programs have developed networks of individuals to help other teachers learn to use the materials and for obtaining feedback to modify the materials.

Examples of general and topic-oriented materials that should be considered include (1) *Living Lightly on the Planet* (both elementary and secondary); (2) *Nature Scope and the Class Project* from the National Wildlife Federation; (3) *Learning by Design* produced by the American Institute of Architects; (4) groundwater programs produced in Iowa (*Groundwater Resources and Educational Activities for Teaching*) and Michigan (GEMS); (5) solid waste and hazardous waste materials from Ohio (*Super Saver Investigators* and *Bags, Beakers and Barrels*), Vermont (*Waste Away-Information and Activities for Investigating Trash Problems and Solutions*), Washington (*Turning the Tide on Toxics in the Home*, as well as other publications); and (6) Adopt-a-Stream Program currently from Delta Laboratories, Inc.

Several substantial audiovisual programs are available or under development. *State of the World* from WGBH (Boston) and *Race to Save the Planet* are examples of existing materials. The Public Broadcasting System (PBS) will be releasing *Operation Earth* in late 1990.

More computer software that relates to environmental concerns has recently become available. The Northwest Regional Laboratory produces reviews of software that include environmental materials. The North American Association for Environmental Education (NAAEE) also reviews software.

Another excellent source for identifying good environmental education materials is the annual NAAEE publication listing papers from their annual conference.

The ERIC Clearinghouse for Science, Mathematics and Environmental Education (ERIC/SMEAC) has been contacting people throughout the United States and reviewing published materials to identify other promising and exemplary programs and materials. Descriptions of some of these programs and materials will be published in a 1990 ERIC/SMEAC publication.

What are some good ways to begin?

Some sources of information and publications that include programs and materials described in this digest are listed. In addition, you should contact your state coordinator or specialist in environmental education; many states have started reform activities and you should determine what your state and schools in your state are doing and resources that are available.

Selected Information Sources for Environmental Education

American Institute of Architects
Education Programs
1735 New York Ave., NW
Washington, DC 20006
(202) 626-7300

Delta Laboratories, Inc.
34 Elton Street
Rochester, NY 14607
(716) 271-5333

National Association for Science, Technology and Society
Pennsylvania State University
117 Willard Building
University Park, PA 16802
(814) 865-9951

National Diffusion Network (NDN)
U.S. Department of Education
555 New Jersey Ave., NW
Washington, DC 20202-1525
(202) 357-6134

National Science Teachers Association (NSTA)
1742 Connecticut Ave., NW
Washington, DC 20009
(202) 328-5800

National Wildlife Federation
1400 - 16th St., NW
Washington, DC 20036
(202) 797-6800

North American Association for Environmental Education (NAAEE)
P.O. Box 400
Troy, OH 45393
(513) 698-6493

Northwest Regional Laboratory
101 Southwest Main St., Suite 500
Portland, OR 97204
(503) 275-9500

Project Learning Tree
c/o The American Forest Foundation
1250 Connecticut Ave., NW
Washington, DC 20036
(202) 463-2455

Project Wild
P.O. Box 1860
Boulder, CO 80308-8060
(303) 444-2390

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Education Programs that Work: A Collectionof Proven Exemplary Educational Programs and Practices. Edition 14. Sopris West Incorporated, Longmont, CO, 1988. ED 296 984.

Engleson, David C. *A Guide to Curriculum Planning in Environmental Education.* Wisconsin Department of Public Instruction, Madison, WI, 1985. ED 264 134.

Gross, Michael P., Richard J. Wilke and Joseph F.Passineau. *Working Together to Educate about the Environment. Selected Papers from the Joint Conference of the North American Association for Environmental Education and The Conservation Education Association (Estes Park, Colorado, August 18-23, 1989).* North American Association of Environmental Education , Troy, OH. ED 309 936.

Iozzi, Louis A. .and Clint L. Shepard, eds. *Building Multicultural Webs through Environmental Education. Selected Papers From the Annual Conference of the North American Association for Environmental Education (17th, Orlando, Florida, October 14-19, 1988).* North American Association for Environmental Education, Troy, OH. ED 308 089.

The STS Reporter, The Pennsylvania State University, University Park, PA, various years.

White, J. Lynne, ed. *Catalog of Practices in Science and Mathematics Education.* COSMOS Corporation, Washington, DC, 1986.

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